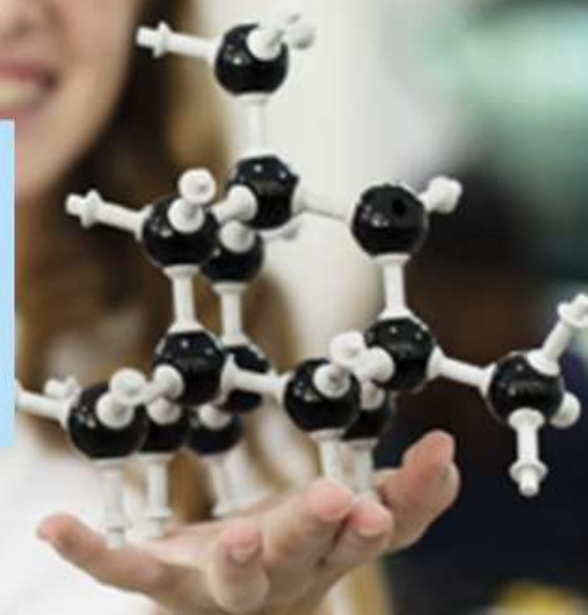


Digital Product Passport in the Mattress Industry

Stefaan Cognie
Co-founder
TripleR

tripleR.io



WERKAGENDA
Chemie/Kunststoffen

SAMEN MAKEN WE
MORGEN MOOIER
OVAM



essenscia
Chemistry meets life sciences

vlaanderen-circulair.be





tripleR.io

furniture 
mattress 

June 11th 2025

WHY? – are you AWARE?



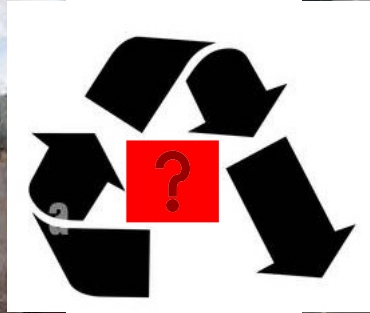
WHY? - LEGISLATION - Do you comply?



Textiles - Furniture - Mattresses - Tyres

WHY? – Do you want VALUE?

Industry – finance sector – investors – bank rating



PUR & LATEX

1. SINGLE PHASE Recycling
2. Rebounded foam
3. Incineration
~ 40% of total weight

TEXTILES

1. Mechanical ???
2. Incineration
~ 25% of total weight

DOWN CYCLING

= LIMITED SCALE and @LOW VALUE!!

FACTS

“Waste is material without identity” – T. Rau

EU

~ 35-40 mio mattresses/year

~ 800.000 MT of waste material per year

300 kT of PUR - 200 kT of textiles ~ 60%

PES

BE-FR-NL

~ 9 mio mattresses/year

~ 180.000 MT of material / year

72 kT of PUR - 45 kT of textiles ~ 60% PES

- Average lifetime of mattresses ~ 10 yrs
- 50% of total produced PUR volume → mattresses ; <5% of PUR is recycled in EU
- Perception that PUR is not recyclable but both PUR and PES chemical recycling technology is available
- Split phase > Single phase > Rebound foam > Incineration

How to CREATE VALUE?

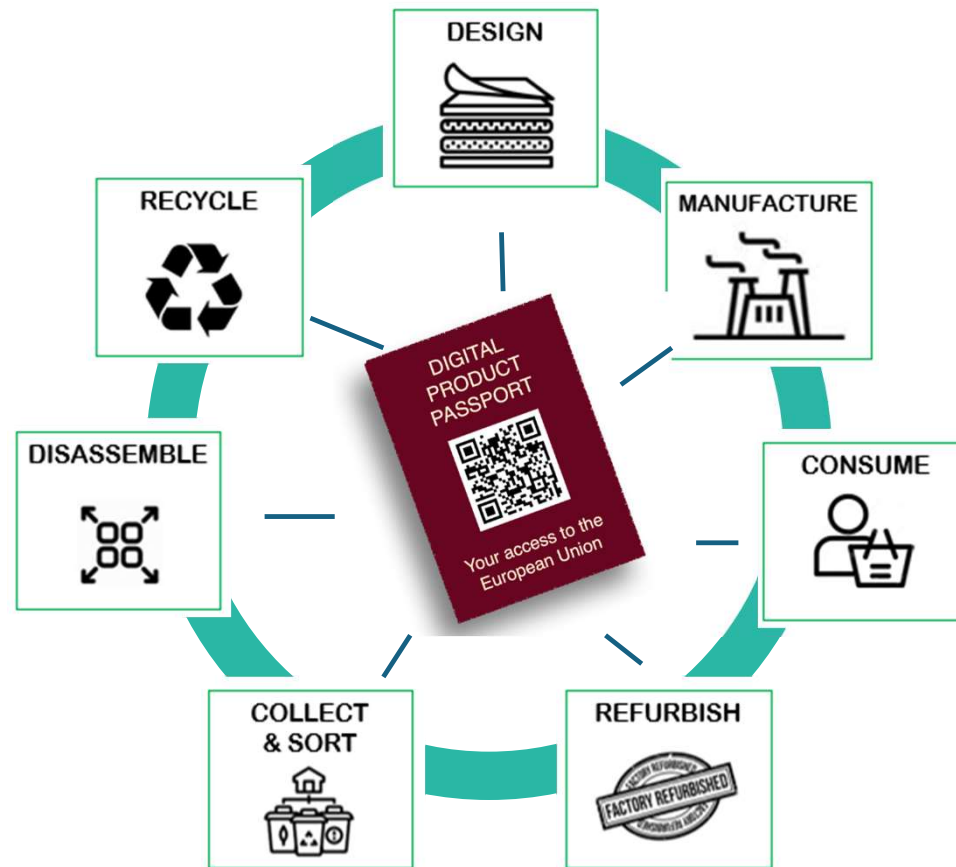
BEYOND LEGISLATION

DESIGN TO SELL

SILO

WASTE

TRADITIONAL BUSINESS



DESIGN for RE-USE & RECYCLE

SHARE & COLLABORATE

IDENTIFIED FEED STOCK

NEW BUSINESS MODELS

mattress **iD**

furniture **iD**
by TripleR.io

What is a DPP?

Digital Product Passport

Unique Product Identifier



Linked to a Product Cloud

Voluntary Product information
Mandatory ESPR information
End Of life information

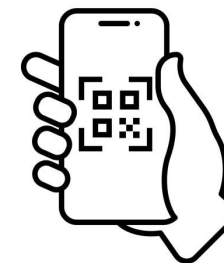


atma.io
by Avery Dennison

Product information

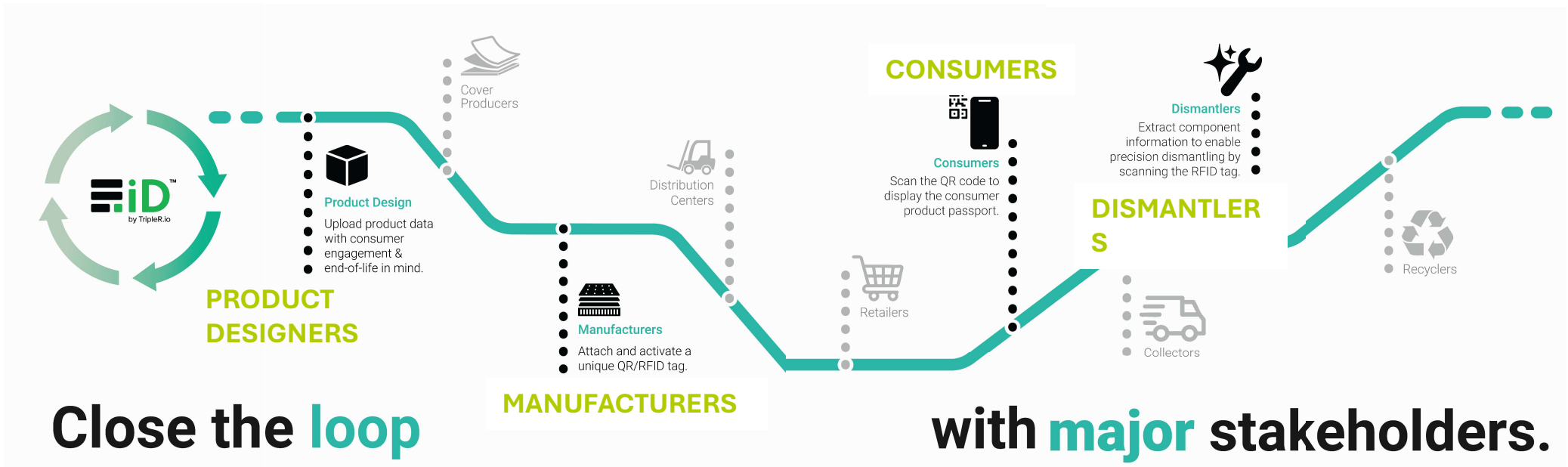
Accessible via QR & RFID

Role based access in function of
stakeholder type



Lifecycle information

end2end, VALUE CREATION **BEYOND** legislation



Data ACQUISITION

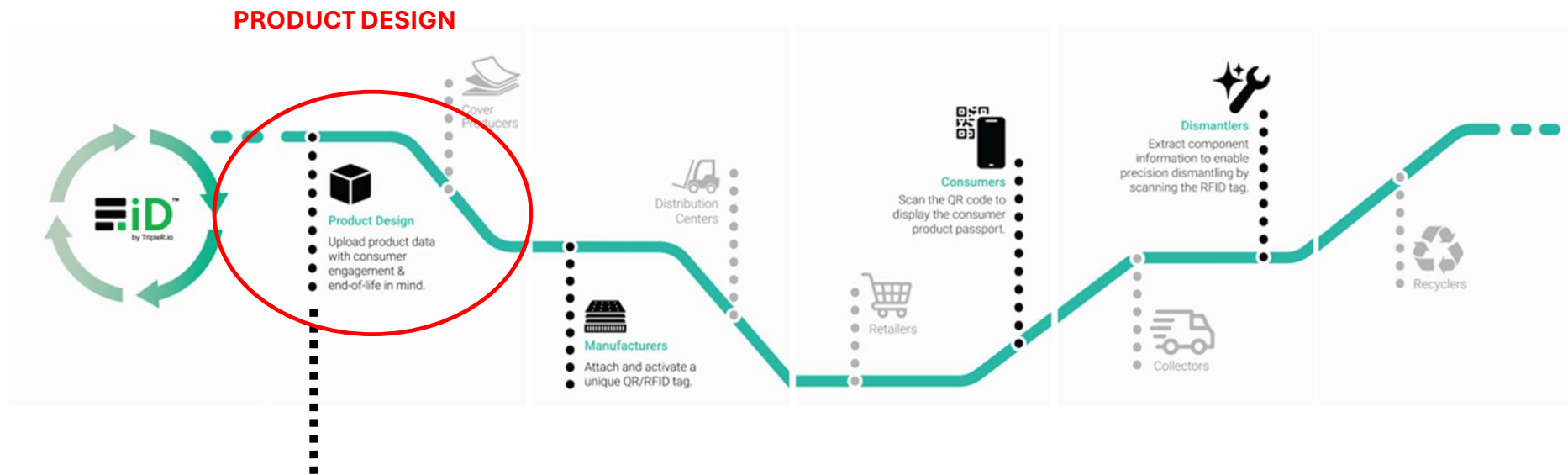
Product Design

STAY INFORMED about ESPR

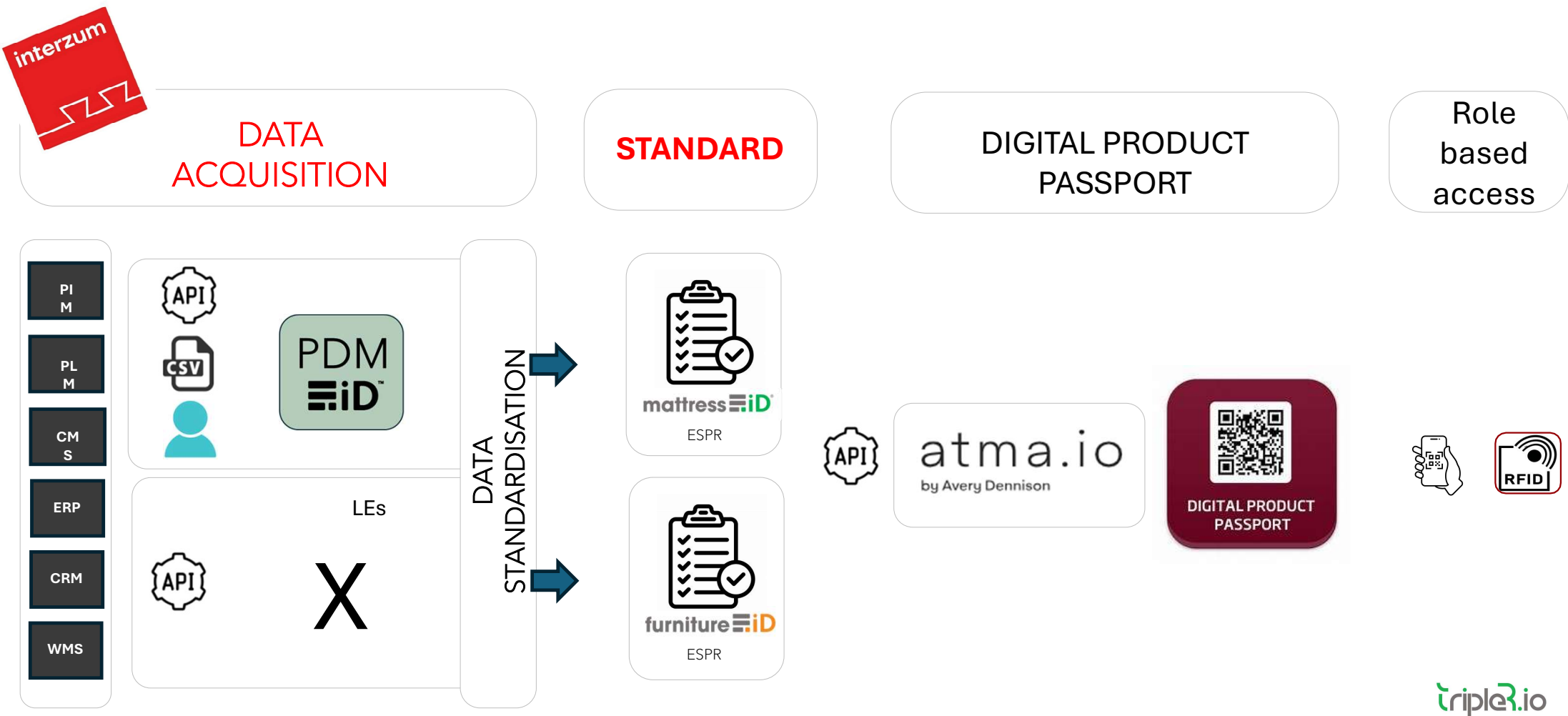
RE-THINK and start to align with **ECO-DESIGN** principles

INTERNALLY ORGANIZE to cope with evolving ESPR requirements

START SMALL but think about the future scope



Data ACQUISITION



Which data points?

Data acquisition

1. Public
2. End of Cycle
3. *Mandatory - ESPR*

Data standardization & discretion

1. PUR
2. PES
3. *Steel*
4. *Latex*
5. ...



Sustainability work group

4 meetings since 09/2024

Data points agreed - DRAFT

To be integrated in DPP data set

Advanced draft DPP Information Table

- formal adoption pending

3.3

For furniture
& mattresses

Remains to
define glueing

Part	Material	Color	Foam Family	Density	Isocyanates	Polyols	Fillers	Substances of Concern	Hindrances to Circularity	Other materials in foam?	Certification
[information relevant for] All				Mechanical Recycling	Chemical Recycling			All			
				Unit is kg/m³ One of three bands to be selected			= non-reactive solid, eg Calcium Carbonate, carbon black, polyolefins/pigments	SVHC, CLP, POP; exact list to be confirmed followed by a delegated act; e.g. Melamine	'substances that negatively affect recycling'; e.g. TCPP, Carbon black	e.g. metals, hard plastics, non-wovens	
A, B, C, D	PU Foam ...		- E - HR - VE/Memory - CME - CMHR - CMVE - Rebonded - Other	10 - 30 30 - 50 > 50	- TDI - MDI - TDI+MDI	- Conventional polyols (inactive, typical MW 2800 – 3500) - HR Polyols (reactive, - Other (e.g. VE blends)	YES / NO *** If yes:	YES / NO *** If yes – which one [TBD by the delegated act, thresholds may apply]	YES / NO *** If yes – which one [TBD by the delegated act, thresholds may apply]	YES / NO *** ☐ CertiPUR ☐ Oeko Tex	

Integrate into DPP data set

End of Life application

Precision Dismantling

Towards SINGLE PHASE recycling

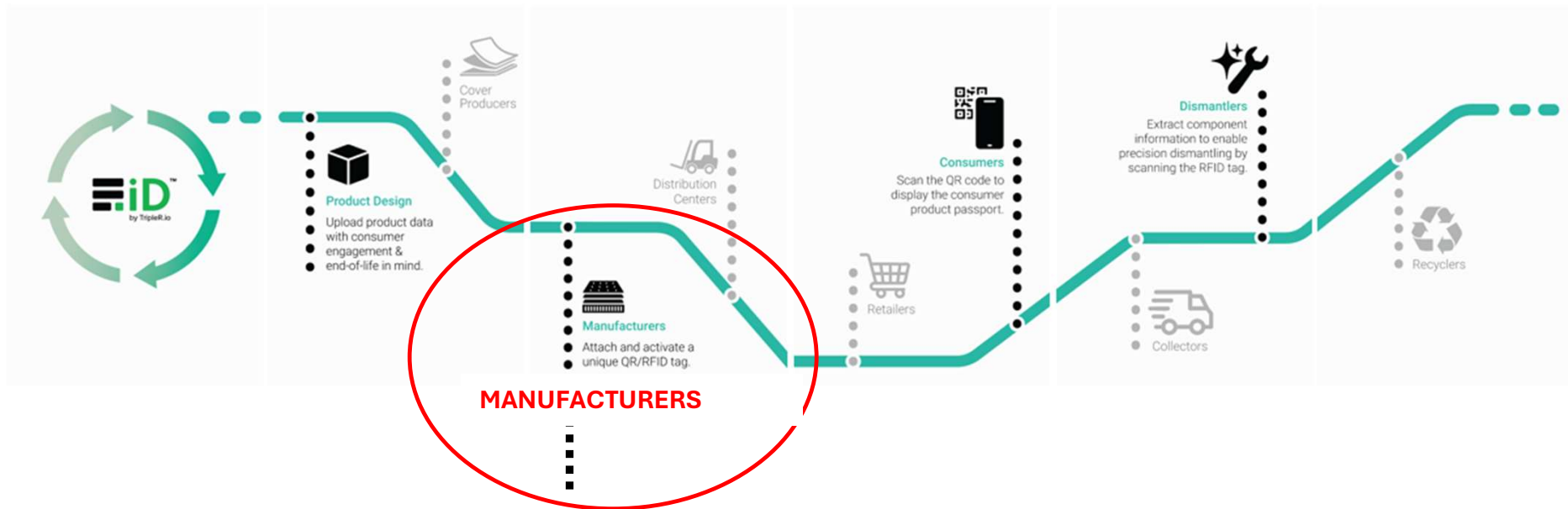
Integrate into DPP data set

End of Life application

Precision Dismantling

Towards SINGLE PHASE recycling

MANUFACTURING phase?



DPP ASSOCIATION application in function of level of
digitization, volume and required efficiency
QR/RFID tag Selection

ASSOCIATION

atma.io

Association

Location
Gent, Belgium

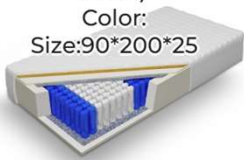
Readpoint
ASSOC_STAT_1

Details

Purchase Order
EUROPUR demo

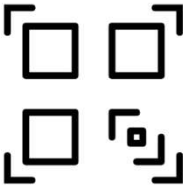
Clear all fields

Demo mattress
enriched data (no BOM)
Color:
Size:90*200*25



05487567889661

Item



Item

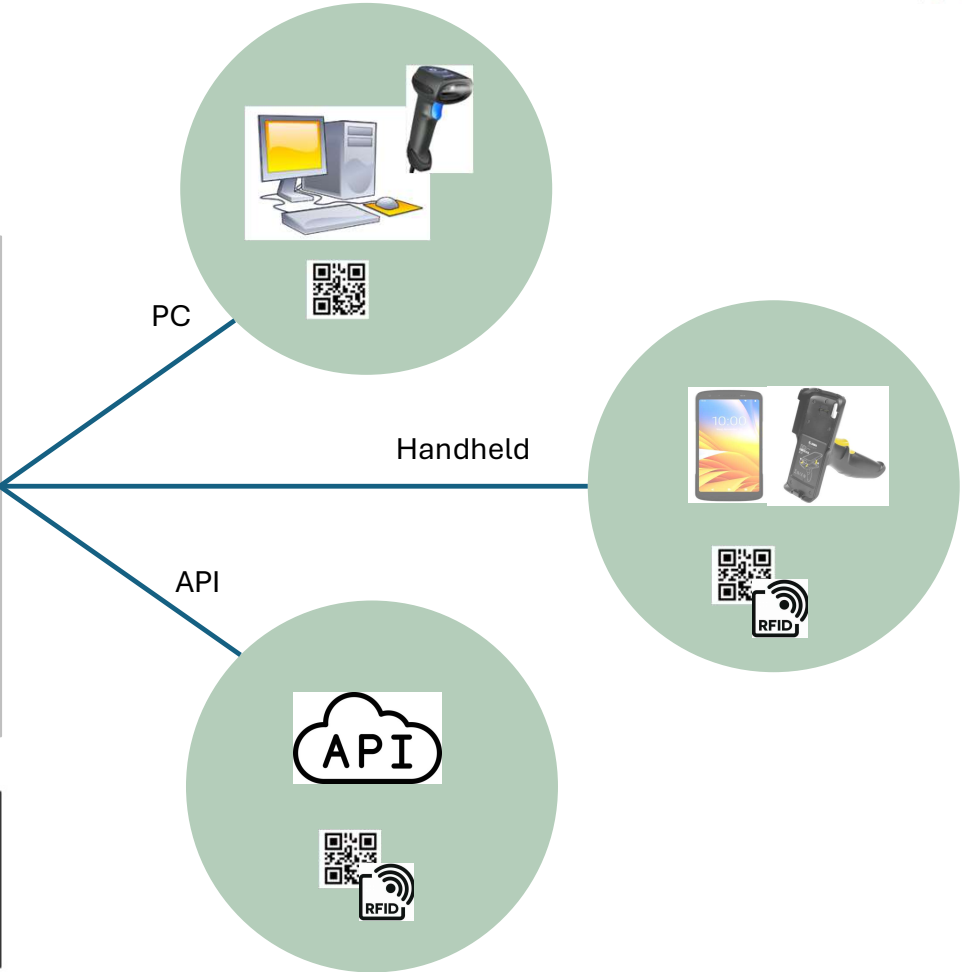
GTIN-14

01234567891011

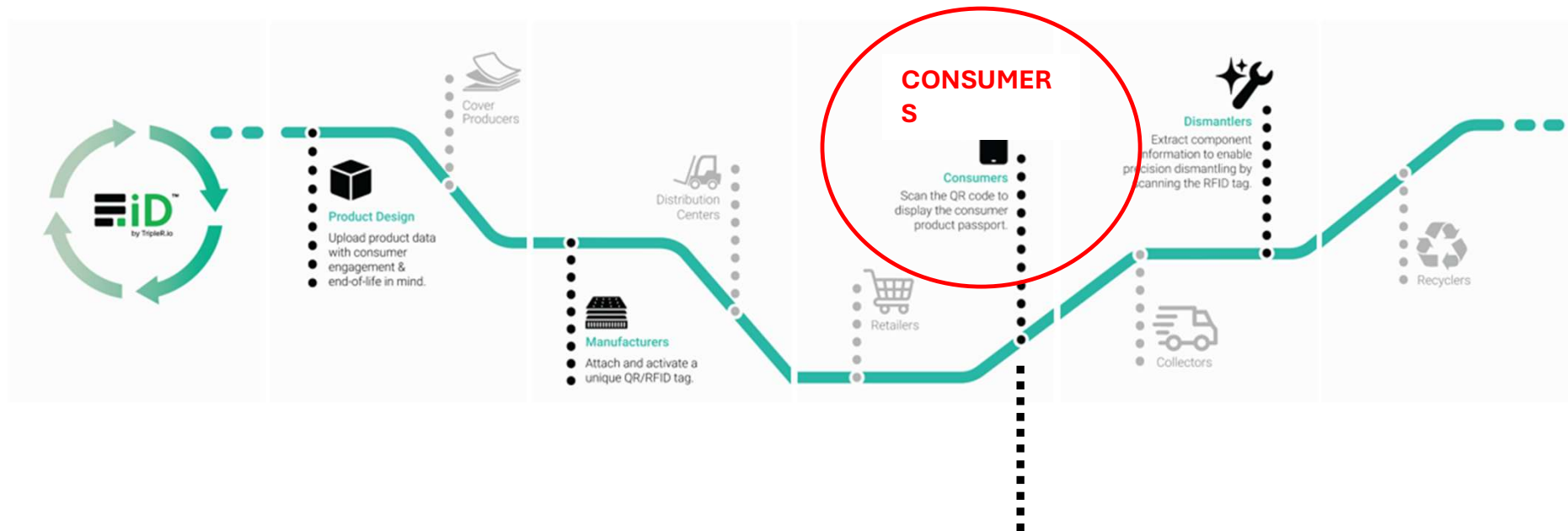
+


Text 1
Text 2
Text 3
Text 4
3031A2AB0F08C08218711A00


mattress*iD*



How to ENGAGE with CONSUMERS?



Create Customized **LANDING PAGES** with Brand Signature

Value of consumer engagement

Create trust

Let your brand stand out

Communicate Sustainability Efforts

Provide Usage and End-of-Life Instructions

Facilitate return of trial mattresses

Examples





Model Name: Aero Anatomic 1500 Gelpulse
Size: 100x200x26

Product Details

Materials Information

Care

Consumer section



Powered by 





Model Name: Essence
Size: 90 x 200 x 15 cm

Product Details

Materials Information

Care

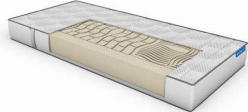
Circularity

Consumer section



Powered by 





Model Name: LATEX 550 Xp-F1
Size: 80x190x20

Product Details

Materials Information

Care

Circularity

Consumer section



Powered by 





Model Name: City
Size: 200 x 200 x 25

Product Details

Materials Information

Care

Circularity

Consumer section



Powered by 





Model Name: Luxe
Size: 90x190x31 cm

Product Details

Materials Information

Care

Circularity

Consumer section

Certifications



Powered by 



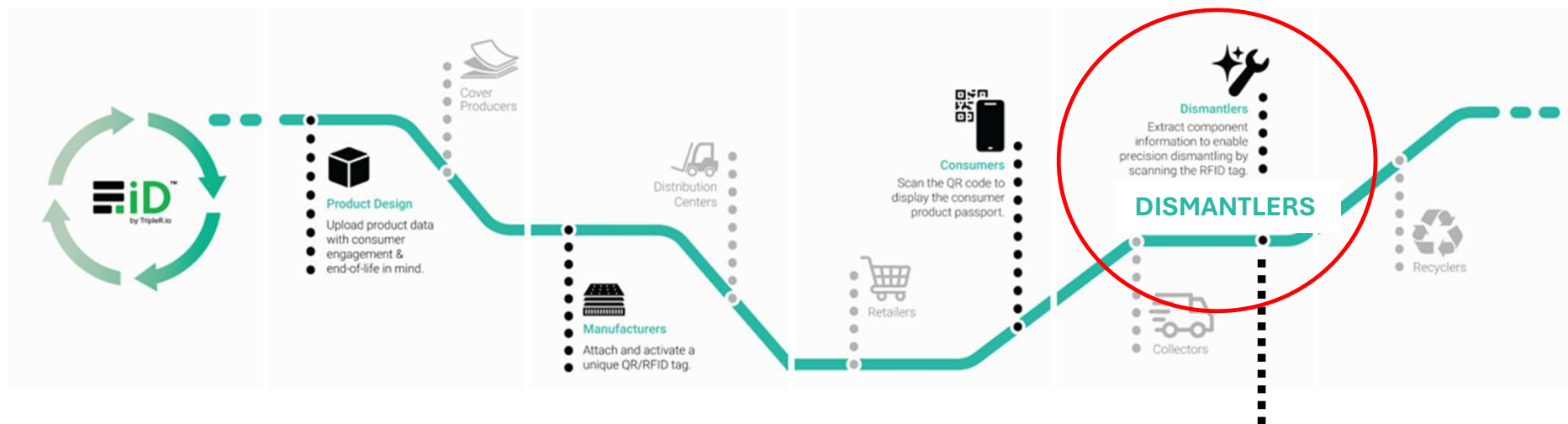
Funded by the European Union



Powered by 



TripleR enables PRECISION DISMANTLING



Enable PRECISION DISMANTLING

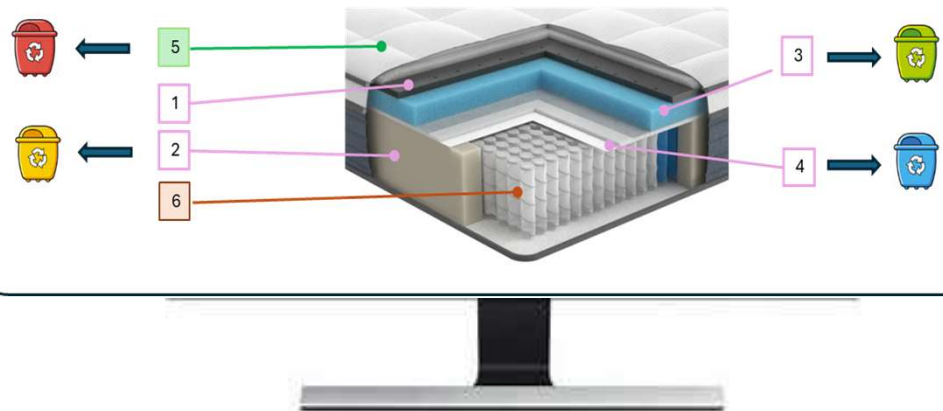
END of LIFE Application development

Enable data ACCESS to COMPONENT composition

PRECISION DISMANTLING application through *RFID* enabled DPP



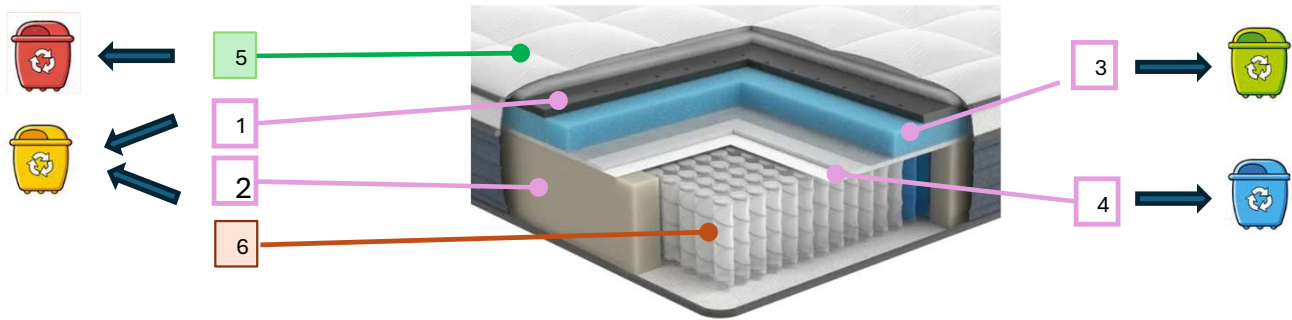
- Disassembly instructions
- Component family, composition ...
- Age of the mattress
- Presence of SOC (Substance of Concern)
- Presence of electronic parts



PRECISION DISMANTLING application through *RFID* enabled DPP

EUROPUR

- MDI
- Polyol
- % filler
- Kg/m3
- SOC



EUROPUR

- MDI
- Polyol
- % filler
- Kg/m3
- SOC



POLYURETHANE

1. SPLIT PHASE Recycling

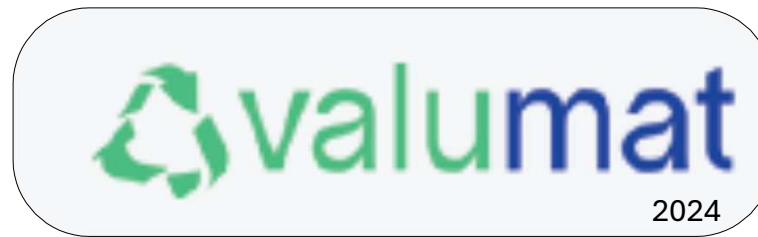
POLYESTER

1. CHEMICAL PES recycling

By 2027 - Dismantlers in BE, FR and the NL

to be equipped with mattressID RFID EOL **i**

With WHOM?



RĒVORGROUP



With WHOM?



mattress  [®]
by TripleR.io



In collaboration with EPR bodies



Supported by



Proud Member of



Towards a Regional Recycling Hub?



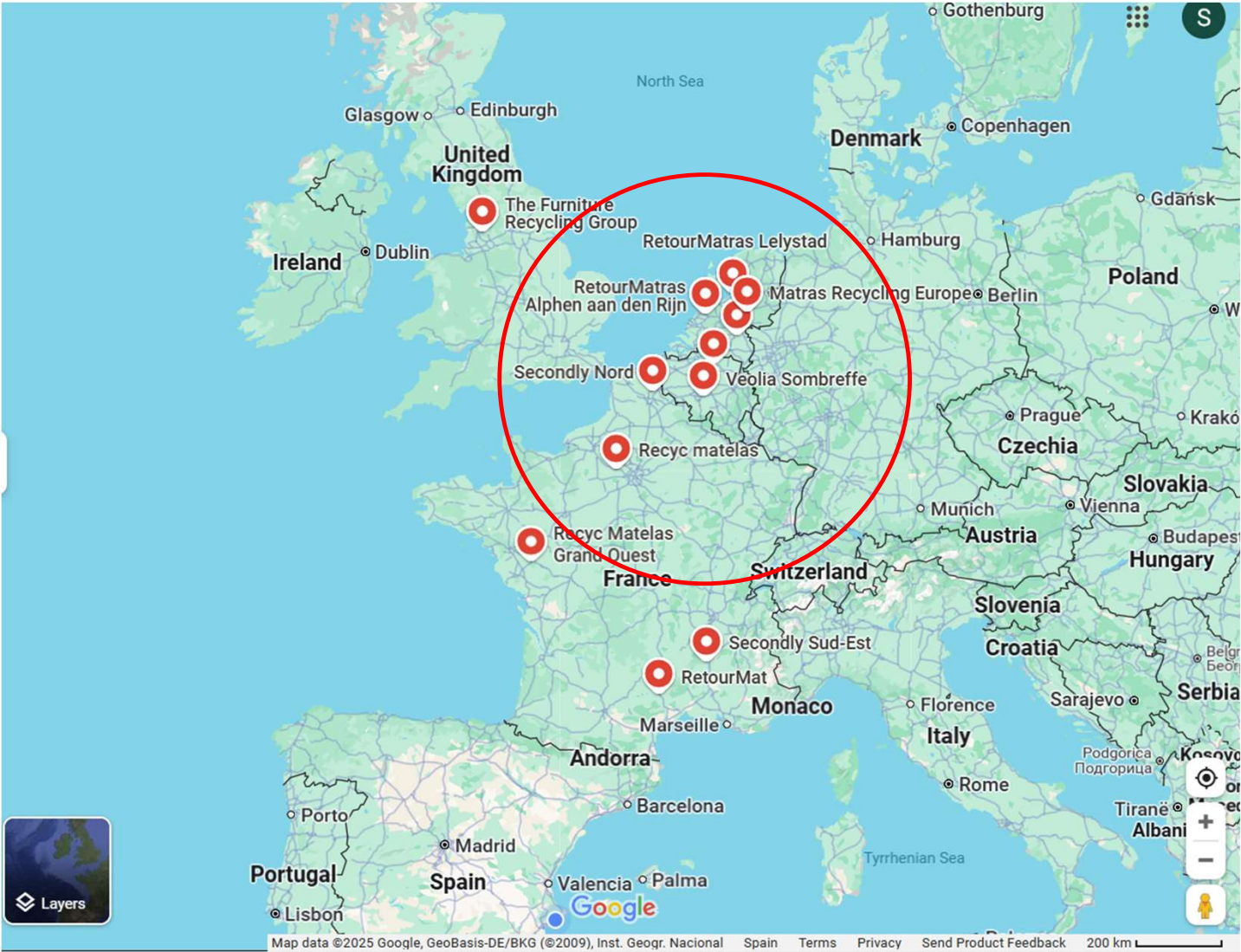
OR...Wait with DPP deployment until 2029 (ESPR Delegated Act)?

- ☐ Chicken or Egg
- ☐ First returned mattresses will become available 5-6 yrs after ESPR 2029... > 2034
- ☐ Other countries advancing quickly; Belgium to lose its pole position?

An opportunity for Belgium in a depressed market...

- ☐ Break the Chicken or egg syndrome
- ☐ Incentivize front runners in the mattress industry
- ☐ Create value by investing in Recycling Capacity, both PUR and PES
- ☐ Mattress industry as a use case for other sectors

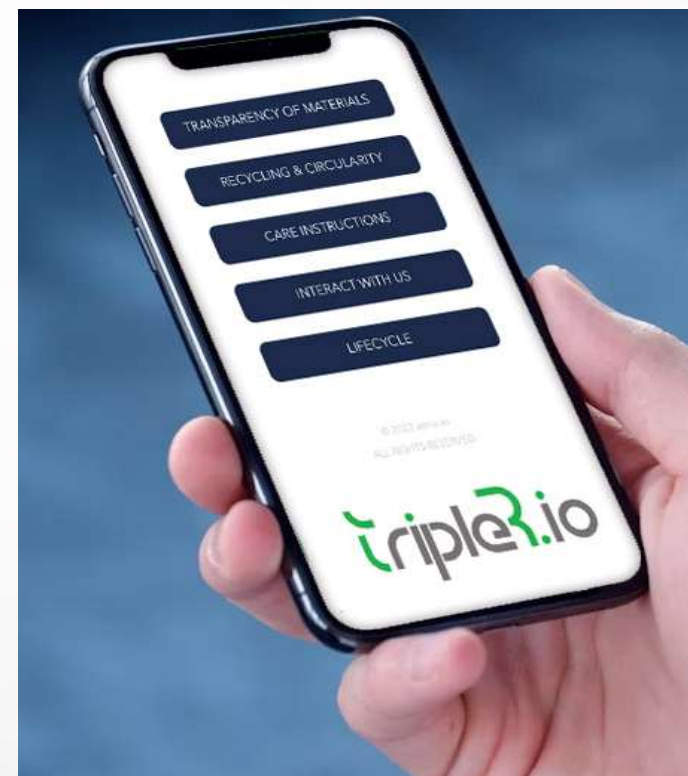
Radius ~500km
Long: 0-8,5
Latt: 47-56





mattress **iD**[®]
by TripleR.io

furniture **iD**
by TripleR.io



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